

Underlying and Multiple Causes of Death

Underlying Cause of Death Codes

ICD_9REV Underlying Cause of Death for death years 1986-1998

The variable ICD_9REV is a four position, left-justified character variable with an implied decimal point after the third position. For those ICD-9 causes that do not have a 4th digit, the 4th position of ICD_9REV is blank. For deaths due to injury or poisoning, the underlying cause of death is classified according to the intent or manner of death using ICD-9 external cause codes E800-E999; however, the actual E character is omitted from the **ICD_9REV** fields. Information on the nature of the fatal injury or poisoning is coded using ICD-9 codes 800-999 and can only be found in the multiple cause of death condition codes (COND_1 - COND_20 and RCOND_1 - RCOND_20). External cause of death codes (E800-E999) that appear in the multiple cause of death condition codes do contain E codes so that they may be distinguished from nature of injury codes (800-999).

The underlying cause of death is coded according to the 9th revision of the International Statistical Classification of Diseases, Injuries, and Causes of Death (ICD-9) for NHIS respondent deaths occurring between 1986 and 1998. For more information regarding ICD-9 coding guidelines see the Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death: Based on the Recommendations of the Ninth Revision Conference, 1975, and Adopted by the Twenty-ninth World Health Assembly, Volume 1, 1977 (World Health Organization).

ICD_10REV Underlying Cause of Death for death years 1999-2002

The variable ICD_10REV is a four position, left-justified character variable with an alpha character in the first position and an implied decimal point after the third position. For those ICD-10 causes that do not have a 3rd digit, the 4th position of ICD_10REV is blank. For deaths due to injury or poisoning, the underlying cause of death is classified according to intent or manner of death using U, V, W, X, and Y codes. Information on the nature and body region affected by the injury and poisoning is coded using S and T codes and can only be found in the multiple cause of death condition codes.

The underlying cause of death code is coded according to the 10th revision of the International Statistical Classification of Diseases, Injuries, and Causes of Death (ICD-10) for NHIS respondent deaths occurring between 1999 and 2002. For more information regarding ICD-10 coding guidelines see the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision. (World Health Organization) 1992. Revision, Volume 1.

Underlying Cause of Death Recodes

UCOD_282 Underlying Cause of Death Recode-282 groups for death years 1976-1998 (ICD-9)

UCOD 72 Underlying Cause of Death Recode-72 groups for death years 1976-1998 (ICD-9)

UCOD 34 Underlying Cause of Death Recode-34 groups for death years 1976-1998 (ICD-9)

UCOD 358 Underlying Cause of Death Recode-358 groups for death years 1999-2000 (ICD-10)

UCOD 113 Underlying Cause of Death Recode-113 groups for death years 1976-2000 (ICD-10)

Cause of death coding for all U.S. deaths occurring after 1998 uses the ICD-10 guidelines. To assist the researcher with mortality analyses that span the entire NHANES II mortality period (1976-2000) all deaths from 1976 through 1998 coded under ICD-9 guidelines were also recoded into comparable ICD-10 based underlying cause of death recode groups. For more on the comparability of ICD-9 and ICD-10 underlying cause of death recodes see: Anderson RN, Minino AM, Hoyert DL, Rosenberg HM. [Comparability of cause of death between ICD-9 and ICD-10: Preliminary estimates](#). National Vital Statistics Reports; Vol 49 No.2. Hyattsville, MD: National Center for Health Statistics. 2001. This document is also available on the NCHS website.

UCOD 39 Underlying Cause of Death Recode-39 groups for death years 1999-2000 (ICD-10)

The 39 underlying cause of death recode groups are only available for NHANES II deaths occurring from 1999 through 2000. No ICD-9 to ICD-10 comparability recodes are available for the 39 underlying recode group.

Multiple Causes of Death Codes

NCHS Procedures Used to Code Multiple Cause Data

The original scheme for coding conditions listed on the death certificate was designed with two objectives in mind. First, to facilitate etiological studies of the relationships among conditions, it was necessary to reflect accurately, in coded form, each condition and its location on the certification in the exact manner given by the certifier. Secondly, the codification needed to be carried out in a manner by which the underlying cause-of-death could be assigned through computer applications. The approach was to suspend the linkage provisions of the ICD for the purpose of condition coding and code each entity with minimum regard to other conditions present on the certification. This general approach is hereafter called entity coding.

Unfortunately, the set of multiple cause codes produced by entity coding is not conducive to a third objective--the generation of person-based multiple cause statistics. Person-based analysis requires that each condition be coded within the context of every other condition on the same certificate and modified or linked to such conditions as provided by the ICD. By definition, the entity data cannot meet this requirement since the linkage provisions distort the character and placement of the information originally recorded by the certifying physician.

Since the two objectives are incompatible, the Division of Vital Statistics (DVS) at the National Center for Health Statistics chose to create from the original set of entity codes a new code set called record axis multiple cause data. Essentially, the axis of classification has been converted from an entity basis to a record (or person) basis. The record axis codes are assigned in terms of the set of codes that best describe the overall medical certification portion of the death certificate. The translation is accomplished by a computer system called TRANSAX (TRANSLATION OF AXIS) through selective use of traditional linkage and modification rules for mortality coding. Underlying cause linkages which simply prefer one code over another for purposes of underlying cause selection are not included. Each entity code on the record is examined and modified or deleted as necessary to create a set of codes which are free of contradictions and are the most precise within the constraints of ICD-9 and medical information on the record. Repetitive codes are deleted. The process may (1) combine two entity axis categories together to a new category thereby eliminating a contradiction or standardizing the data; or (2) eliminate one category in favor of another to promote specificity of the data or resolve contradictions.

COND 1 -- COND 20 Entity axis multiple cause of death codes

Space has been provided for a maximum of 20 entity axis conditions. Each condition takes 7 positions in the record. Records that do not have 20 conditions are blank in the unused area.

Position 1: Part/line number on certificate

- 1.... Part I, line 1 (a)
- 2.... Part I, line 2 (b)
- 3.... Part I, line 3 (c)
- 4.... Part I, line 4 (d)
- 5.... Part I, line 5 (e)
- 6.... Part II

Position 2: Sequence of condition within part/line

- 1-9.... Code range

Positions 3-6: ICD-9 condition code for deaths occurring from 1976-1998
ICD-10 condition code for deaths occurring from 1999-2000

See the Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death: Based on the Recommendations of the Ninth Revision Conference, 1975, and Adopted by the Twenty-ninth World Health Assembly, Volume 1, 1977 (World Health Organization) for a complete list of ICD-9 codes. See the International Statistical Classification of Diseases

and Related Health Problems, Tenth Revision. (World Health Organization) 1992, Volume 1 for a complete list of ICD-10 codes.

Position 7: Nature of Injury Flag

- 1.... Indicates that the code in positions 3-6 is an ICD-9
 Nature of Injury code
- 0.... All other codes

RCOND 1 -- RCOND 20 Record axis multiple cause of death codes

Space has been provided for maximum of 20 record axis conditions. Each condition takes 5 positions in the record. Records that do not have 20 conditions are blank in the unused area.

Positions 1-4: ICD-9 condition code for deaths occurring from 1976-1998
ICD-10 condition code for deaths occurring from 1999-2000

See the Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death: Based on the Recommendations of the Ninth Revision Conference, 1975, and Adopted by the Twenty-ninth World Health Assembly, Volume 1, 1977 (World Health Organization) for a complete list of ICD-9 codes. See the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision. (World Health Organization) 1992, Volume 1 for a complete list of ICD-10 codes.

Position 5: Nature of Injury Flag

- 1.... Indicates that the code in positions 3-6 is an ICD-9
Nature of Injury code
- 0.... All other codes